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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,129	05/22/2000	Yong-Kyu Jang	06192.0137	1752

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EXAMINER

NGUYEN, DUNG T

ART UNIT

PAPER NUMBER

2871

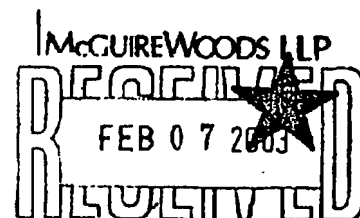
DATE MAILED: 02/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/576,129

Applicant(s)

JANG, YONG-KYU

Examiner

Dung Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 22 May 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 22 May 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed 09/05/2000.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In particular, claims 9 recites the limitation of the values (Θ1, Θ2, Θ3, Θ4) is selected from (75, 15, 105, 165) and (165, 105, 15, 75) which fails to further limit from based claims 1 and 6.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 1 recites the limitation "the slow axis" in line 11. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 16 recites the limitation "the slow axis" in line 8, "the transmissive axis" in line 9, "the slow axis" in line 11. There is insufficient antecedent basis for this limitation in the claim.

It should be noted that the remaining claims are dependent upon the rejected based claim 6 and thus inherit the deficiencies thereof.

7. Claim 7 recites the limitation "the effective light path difference" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Tillin et al., US Patent No. 6,204,904.

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The above claims are anticipated by Tillin et al. figures 22 and 30 and accompany text which is disclose a liquid crystal display (LCD) device comprising:

- . two substrate glasses (23, 20);
- . a liquid crystal layer (4) therebetween, wherein efficient light path difference is equal to a quarter of predetermined wavelength (e.g., visible light) (see table 1);
- . a polarizer (1);
- . a half wavelength retardation film (5) having a slow-axis (9) which makes an angle $\Theta 1$ with a transmissive axis of the polarizer;
- . a quarter wavelength retardation film (30) having a slow-axis (31) which makes an angle $\Theta 2$ with a transmissive axis of the polarizer in accordance with relation equation $\Theta 2 = (2 \times \Theta 1) \pm 45$ (degrees) (e.g., $\Theta 1 = 15^\circ$ and $\Theta 2 = 75^\circ$);
- . a reflector (2).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tillin et al, US Patent No. 6,204,904, in view of Yoshimizu et al., US Patent No. 5,249,071.

Regarding claims 5, although Tillin et al. do not disclose the use of single-axial films as the retardation films in the LCD device, Yoshimizu et al. do disclose a positive/negative single-

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axial films (i.e., uniaxial film) can be formed in an LCD device as shown in figure 10.

Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to form the Tillin et al. retardation films by single-axial films as shown by Yoshimizu et al. in order to improve a viewing angle character in a specific direction in an LCD device (see col. 5, line 30).

12. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al., US Patent No. 6,341,002, in view of Tillin et al., US Patent No. 6,204,904.

Regarding claims 1-4, Shimizu et al. disclose an LCD device (figures 1A and 2, 100) comprising:

- . two substrate glasses (162, 61);
- . a liquid crystal layer (140) therebetween, wherein efficient light path difference is equal to a quarter of predetermined wavelength (visible light range);
- . a polarizer (172);
- . a half wavelength retardation film (170a);
- . a quarter wavelength retardation film (170b);
- . a reflector (69).

However, Shimizu et al. do not disclose the relationship between two slow axes of the retardation films as $\Theta 2 = (2 \times \Theta 1) \pm 45$ (degrees), wherein $\Theta 1$ is an angle between a slow axis of the half wavelength retardation film and a transmissive axis of the polarizer, $\Theta 2$ is an angle between a slow axis of the quarter wavelength retardation film and the transmissive axis of the polarizer. Tillin et al. do disclose such relationship as described above. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to form the Shimizu et al.

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device having a half wavelength retardation and a quarter wavelength satisfied the relation equation of $\Theta_2 = (2 \times \Theta_1) \pm 45$ (degrees) as shown by Tillin et al. in order to obtain an LCD device with high brightness and contrast (col. 5, line. 32).

Regarding claim 5, it would have been obvious to use single-axial films as the retardation films as stated above (paragraph 12).

Regarding claims 6-12, Shimizu et al. also disclose the LCD device (figures 1A and 4, 100) comprising:

- . a liquid crystal layer (140) therebetween, wherein efficient light path difference is equal to a half of predetermined wavelength (visible light range);
- . an addition polarizer (182);
- . an addition half wavelength retardation film (180b);
- . an addition quarter wavelength retardation film (180a);

wherein a display region is divided into a reflective region having a thickness of d_r and a transmissive region having a thickness of d_t , wherein d_r and d_t is controlled by an organic insulating layer (65).

Shimizu et al., again, do not disclose the relationship between two slow axes of the addition retardation films as $\Theta_3 = (2 \times \Theta_4) \pm 45$ (degrees), wherein Θ_4 is an angle between a slow axis of the half wavelength retardation film and a transmissive axis of the polarizer, Θ_3 is an angle between a slow axis of the quarter wavelength retardation film and the transmissive axis of the polarizer. However, such limitation would have been obvious to one skilled in the art as stated above in order to obtain an LCD device with high brightness and contrast (Tillin et al., col. 5, line. 32).

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Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kubo et al. (US 6,195,140) disclose an LCD device having a display region which is divided to a reflective region and a transmissive region.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 703-305-0423. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7726 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DN
January 27, 2003

Dung Nguyen
Patent Examiner
GAU 2871